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INCIDENCE OF EUTYPELLA CANKER IN
SUGAR MAPLE STANDS
IN THE
UPPER PENINSULA OF MICHIGAN

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INTRODUCTION

Eutypella canker, caused by Eutypella parasitica Davids. & Lorenz, is a common disease causing defects in sugar maple. It is most frequently found on sugar maple, Acer saccharum Marsh., although it may also form cankers on red maple, A. rubrum L.; Norway maple, A. platanoides L.; black maple, A. nigrum Michx. f.; silver maple, A. saccharinum L.; boxelder, A. negundo L.; and sycamore maple, A. pseudoplatanus L. The disease and the characteristics of the fungus have been well described by Kessler and Hadfield (1972) and Kliejunas and Kuntz (1974).

Eutypella canker was first described by Davidson and Lorenz (1938). It was noted in all the National Forests in the Lake States, but was most abundant in the Upper Peninsula of Michigan and in northern Wisconsin. In that region, 0.9 to 6.6 percent of the stems in affected stands had Eutypella cankers (Kliejunas and Kuntz 1974). Eutypella was found infecting 2 to 28 percent of the sugar maple stems in stands in Quebec and up to 40 percent in a stand in Ontario.

A survey by Anderson and Mosher (1979) of Nectria canker on yellow birch showed the incidence of that canker to be greater along the shores of the Great Lakes than it was inland. This discovery prompted the question whether the same pattern existed for Eutypella canker.

OBJECTIVE

The objective of this study was to determine the incidence of Eutypella canker in the Upper Peninsula of Michigan.

METHODS

A roadside survey of 155 sugar maple stands was conducted along the major roadways of the Upper Peninsula of Michigan (Fig. 1). The survey crews selected stands that were at least 5 percent sugar maple and were at least 3 miles apart. Within each stand selected, a transect was established along the longest axis of the stand. Along this transect all sugar maple trees greater than 1 in diameter at breast height (dbh) were examined for the presence of Eutypella parasitica until 50 trees were recorded. Sampled trees were classified as either infected or uninfected and as sawtimber (10 in dbh or greater) or poles and reproduction (less than 10 in dbh and greater than 1 in dbh). For each sawtimber-size tree, the height at which canker appeared on the tree, dbh, and number of 16-foot logs were recorded so that the volume loss as the result of this disease could be determined. For the reproduction and pole-size trees, only dbh was recorded.

Trees were considered infected if the typical signs and symptoms of Eutypella parasitica were present: (a) flared bark and concentric callus rings, (b) bark adhering to canker face, (c) mycelial fans under the bark, and (d) black long-necked perithecia.

RESULTS AND DISCUSSION

The overall incidence of Eutypella canker within the 155 stands examined was 3.6 percent. Seventy percent of the stands, or 109, had less than 5 percent of the sugar maple infected by Eutypella; 25 percent of the stands, or 39, had between 6 and 15 percent infected; and only 5 percent or 7 stands, had 16 to 25 percent infected.

Most of the sugar maples infected were in the reproduction or pole-size class. So few sawtimber-size trees were infected that no impact could be estimated for that size class. The more frequent incidence of Eutypella on smaller stock is similar to the incidence pattern of black knot, Apiosporina morbosa Schw. ex Fr., on black cherry. This pattern could be related to a decrease in the growth rate of infected trees, subsequent suppression, and eventual elimination of these infected trees (Allison and LaMadeleine 1975).

The incidence of Eutypella canker was not related to the proximity of the stand to the shores of the Great Lakes.

CONCLUSIONS

The incidence of Eutypella canker in most of the stands examined was not high enough to affect management objectives. However, infected trees occupy space in a stand without contributing value to the stand, and probably increase infection of the subsequent regeneration by Eutypella parasitica. Therefore, trees with this canker should be removed during cutting operations.

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UPPER PENINSULA OF MICHIGAN

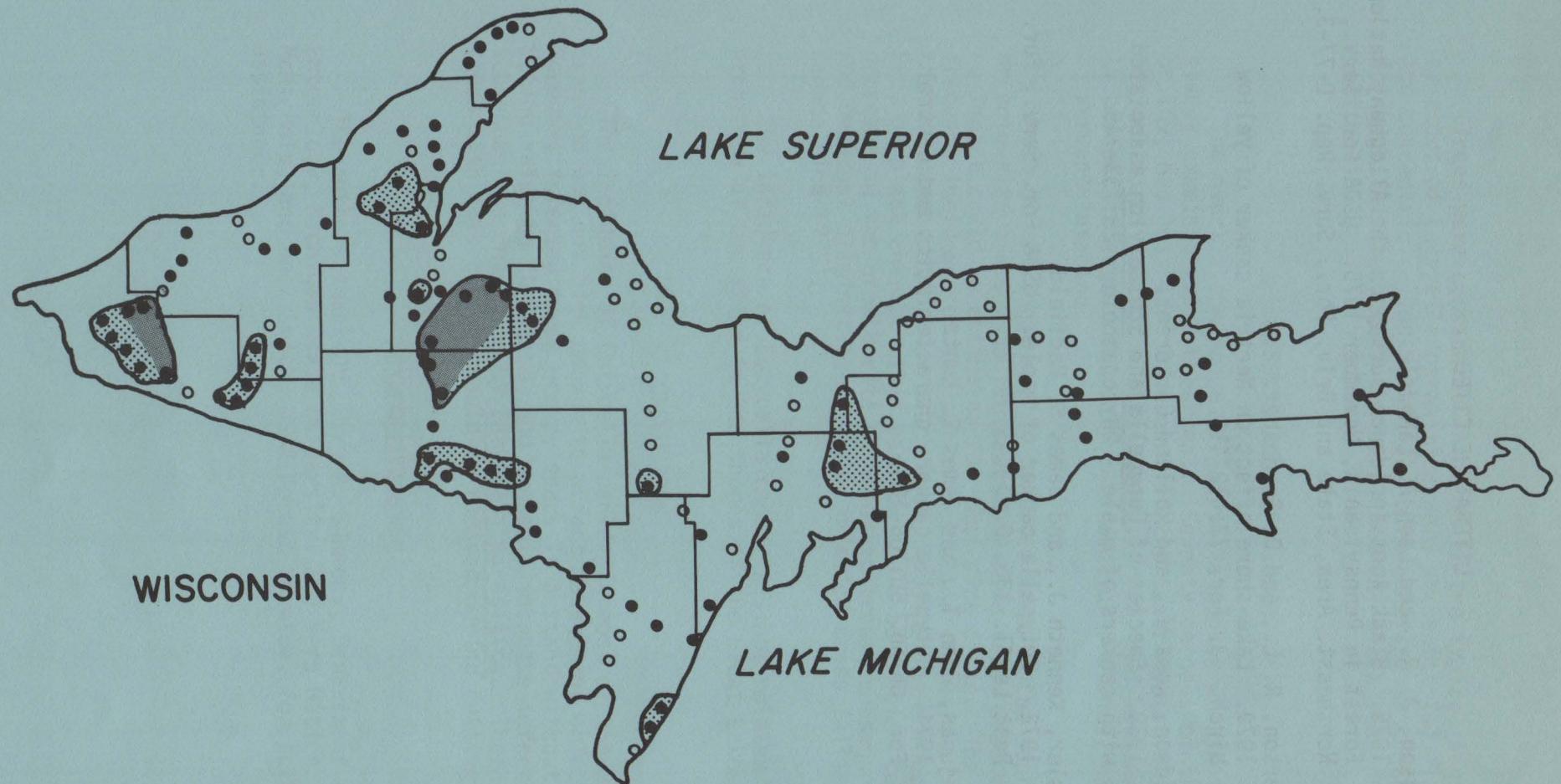


FIGURE CAPTION

Figure 1.--Map of the Upper Peninsula of Michigan showing the location of stands examined for the presence of *Eutypella* canker and zones of various degrees of infection. (Open circles indicate 0 to 5 percent of trees infected; shaded circles, 6 to 15 percent; and dotted areas, 16 to 25 percent.)